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MEMORANDUM

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CC: Mark Looney — Cooley Godward Kronish LLP
John Massey — CESP, Inc

FROM: Christopher Tacinelli, P.E.
Cheryl Sharp, P.E.

DATE: November 12, 2008

SUBJECT: Broadlands Regional Medical Center - Response to Inquiry

This memorandum is to respond to the inquiry of the Planning Commission regarding the trip distribution assumed in the Traffic Impact Study (TIS) dated August 6, 2008, of the Broadlands Regional Medical Center (BRMC). The comment is shown in *italics* with the response in **bold** immediately following.

1) *How would the road network operate if more trips for the BRMC were assumed to be distributed along the local roads rather than the Dulles Greenway?*

The official traffic impact study assumed 60% of the traffic to and from the proposed site would utilize the Dulles Greenway (20% from the west, and 40% from the east), as agreed upon at the scoping meeting. This is because of the regional nature of the proposed hospital and because the market area the hospital will serve extends beyond the immediate Ashburn community.

In response to the Commission's question and at the request of the Office of Transportation Services, we tested the original assumption by reducing by one-half the amount of both hospital and on-site medical office traffic distributed on the Greenway (10% from the west and 20% from the east), with 30% redistributed on the local network. This test assumption was then compared to the results of the official traffic impact study to determine the peak hour incremental difference the revised assumptions would have on the road network.

To be conservative, we also used hospital 'square feet' as the independent variable to be tested, even though we still maintain that using 'beds' is the proper variable for the hospital land use in the Institute of Transportation Engineers (ITE) Trip Generation manual. The number of beds is a more appropriate independent variable

to use compared to the square footage of the hospital, as it can more accurately reflect the number of employees, patients, and visitors to the facility. In addition, the Institute of Transportation Engineers Trip Generation, 7th Edition, the number of beds variable has a larger sample size for each time period, making the rate for calculating and estimating vehicle trips more statistically reliable. Since using the 'beds' variable would have a lesser impact on the network, we used 'square feet' to analyze a worst-case scenario.

Figure 1 shows the travel patterns resulting from the shift in traffic away from the Greenway and onto the local road network. The result of the capacity analysis, along with a comparison to the results as presented in the TIS, is shown in Table 1.

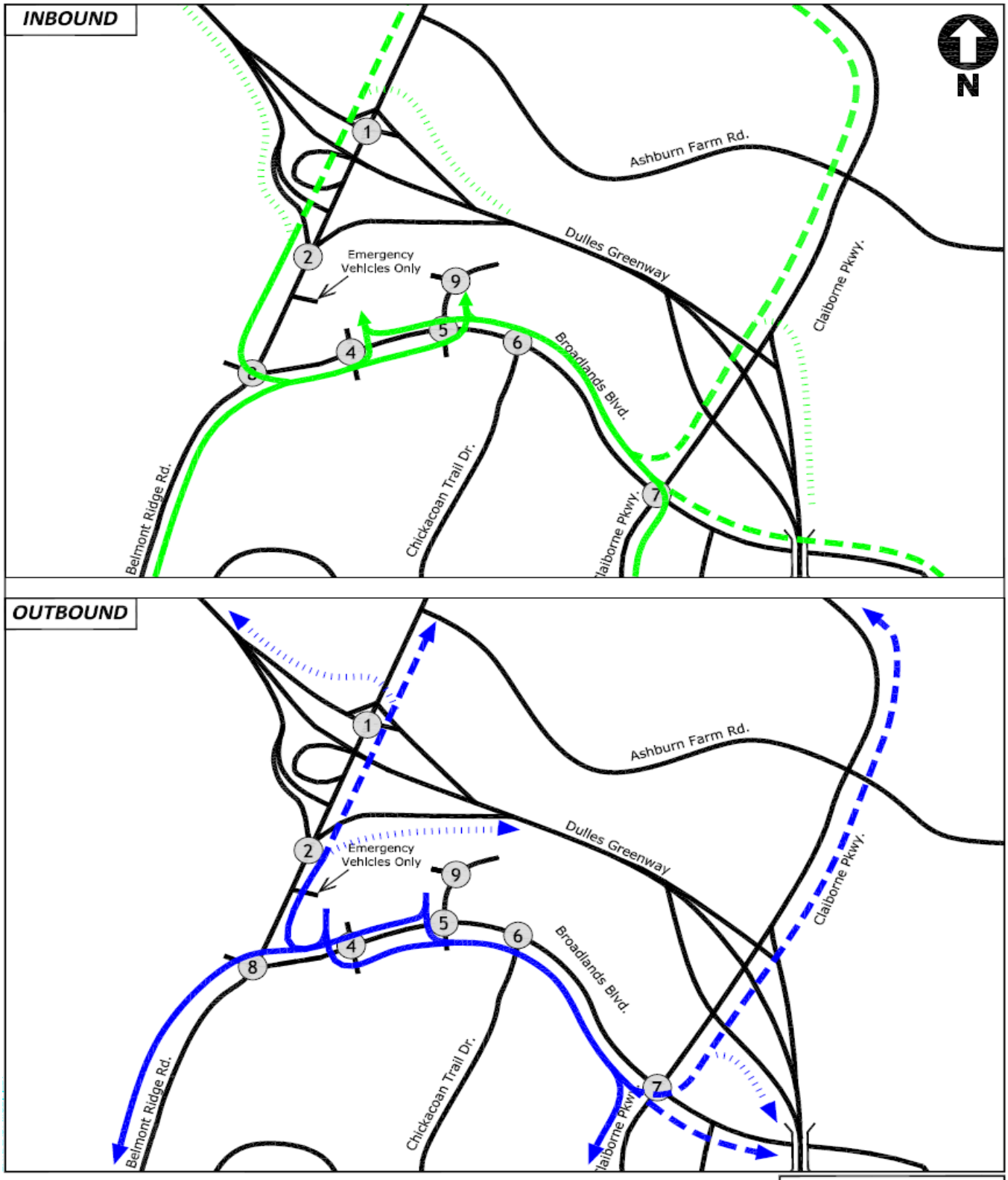

Figure 1: Alternative Travel Patterns

Table 1: Future with Development (2011) Intersection Capacity Results Comparison *(square feet)*

Intersection	Original Distribution				With Revised Distribution			
	AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
Belmont Ridge Rd & Dulles Greenway WB Ramps (Signalized)								
Overall Intersection	C	26.5	B	17.6	B	18.1	B	12.9
Westbound Approach	D	44.7	C	28.1	D	43.2	B	17.0
Northbound Approach	C	20.4	B	16.1	B	12.3	B	12.6
Southbound Approach	C	25.5	B	14.1	B	17.2	B	11.6
Belmont Ridge Rd & Dulles Greenway EB Ramps (Signalized)								
Overall Intersection	B	18.7	B	13.2	B	14.9	B	13.9
Eastbound Approach	D	48.3	D	49.9	D	48.3	D	49.8
Northbound Approach	C	27.1	B	18.4	C	23.1	C	20.6
Southbound Approach	A	7.9	A	2.0	A	4.6	A	2.0
Belmont Ridge Road & Truro Parish Drive (Signalized)								
Overall Intersection	C	31.0	C	30.9	C	31.0	C	30.9
Eastbound Approach	D	46.9	D	45.9	D	46.9	D	45.9
Westbound Approach	D	41.8	C	31.7	D	41.8	C	31.7
Northbound Approach	C	30.0	C	32.0	C	30.0	C	32.0
Southbound Approach	C	26.5	C	29.2	C	26.5	C	29.2
Broadlands Blvd & Glebe View Dr/Site Driveway (Unsignalized)								
Eastbound Left Turn	A	9.2	A	9.6	A	9.4	A	9.4
Westbound Left Turn	A	8.6	A	8.0	A	8.4	A	7.9
Northbound Approach	B	10.4	A	9.3	B	10.1	A	9.2
Southbound Approach	C	20.6	C	24.5	C	22.1	E	40.5
Broadlands Blvd & Stonewheel Way/Education Ct (Unsignalized)								
Eastbound Left Turn	A	9.7	A	8.7	B	10.1	A	8.8
Westbound Left Turn	A	8.0	A	8.0	A	8.2	A	8.4
Northbound Approach	B	10.5	B	10.4	B	10.4	B	10.6
Southbound Approach	B	12.1	C	23.0	B	12.8	D	27.6
Broadlands Blvd & Chickacoan Trail Dr (Unsignalized)								
Eastbound Left Turn	A	0.0	A	7.7	A	0.0	A	7.8
Westbound Left Turn	A	8.2	A	8.8	A	8.4	A	9.4
Northbound Approach	B	11.5	D	26.1	B	11.9	D	31.7
Southbound Approach	B	12.8	B	12.7	B	14.6	B	14.1
Broadlands Blvd & Claiborne Pkwy (Signalized)								
Overall Intersection	C	20.7	C	27.7	C	20.7	C	28.3
Eastbound Approach	C	29.0	D	36.9	C	27.8	D	37.1
Westbound Approach	C	21.8	D	35.1	C	23.0	D	37.9
Northbound Approach	B	19.9	C	27.6	B	19.7	C	27.4
Southbound Approach	B	19.7	C	22.0	B	19.3	C	21.6

Intersection	Original Distribution				With Revised Distribution			
	AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
Education Ct & Site Drive								
Eastbound Approach	A	8.8	B	10.8	A	8.7	B	11.0
Northbound Left Turn	A	4.8	A	6.3	A	4.0	A	6.5
Broadlands Blvd & Belmont Ridge Rd								
Overall Intersection	C	32.1	C	21.3	C	26.1	B	19.6
Eastbound Approach	D	50.8	D	49.4	D	50.8	D	49.4
Westbound Approach	A	7.2	A	8.2	A	8.4	A	9.2
Northbound Approach	D	46.9	C	32.2	D	46.9	C	27.3
Southbound Approach	C	26.7	B	20.0	B	13.5	B	18.1

The results shown in Table 1 are similar to the results of the TIS prepared for the site, showing there is sufficient capacity in the local network to accommodate the proposed development. Due to the change in distribution, the level of service (LOS) of the unsignalized southbound approach at the intersection of Broadlands Boulevard and Glebe View Drive/site entrance falls below the acceptable LOS 'D'. However, this intersection is proffered to be signalized if and when warranted, which would result in acceptable levels of service for all approaches.